ScienceDirect

Journal of Ethnopharmacology

Volume 293, 15 July 2022, 115319

Jawarish Shahi: A special dosage form of herbal formulations for functional gastrointestinal disorders in Unani medicine- A comprehensive review

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https://doi.org/10.1016/j.jep.2022.115319

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Highlights

- This study indicates that disease conditions similar to FD and IBS and their treatment are described in Unani Medicine.
- Jawarish Shahi is a herbal pharmacopeial drug specially prepared for gastrointestinal disorders in Unani Medicine.
- The ingredients have been researched widely for their phytopharmacology and diverse effects reported in biomedical studies.
- Antioxidant, anti-inflammatory, analgesic, antidiarrheal, laxative, anxiolytic and antidepressant effects are reported.

- This study validates Jawarish Shahi and its herbal ingredients in GI disorders recommended by physicians in Unani medicine.

Abstract

Ethnopharmacological relevance

Functional gastrointestinal disorders (FGIDs) are the most common diagnoses in gastroenterology and represent a group of chronic unexplained gut syndromes. The best-known disorders are irritable bowel syndrome (IBS) and functional dyspepsia (FD). Jawarish Shahi (JS) is used for gastrointestinal disorders in Unani Medicine (UM).

Aims of the study: The present review aims to evaluate the FD and IBS in Unani medicine and scientific evidence for the safety and efficacy of JS and its herbal ingredients in the management of FD and IBS.

Material and methods

Sources of data are from the classical literature of UM, Canon of medicine, Khazainul Advia, Indian Medicinal Plants-An Illustrated Dictionary. Databases, PubMed, Science Direct, Scopus, Google Scholar, were explored for related studies.

Results

An updated review on the concept of FGIDs in Unani medicine, its pathophysiology, and management is presented. Comprehensive information on JS and its traditional and ethnopharmacological clinical attributes, standardization and toxicity study, biomedical studies of herbs in JS for their efficacies in FD and IBS are presented.

Conclusions

The outcome of the work clearly indicates that disease conditions similar to FD and IBS and their successful treatment are described in Unani Medicine. JS has been used for disease conditions similar to FD and IBS by the physicians of the medieval period. The herbs in JS are widely researched for pharmacologically active substances and were reported for antioxidant, immunomodulatory, gastroprotective, antispasmodic, analgesic, antidiarrheal, antisecretory, laxative, anti-inflammatory, anxiolytic, and antidepressant properties. Nevertheless, further explorations, particularly well-designed clinical trials are required for efficacy.

Graphical abstract

Jawarish Shahi: A special dosage form of herbal preparation for the treatment of functional gastrointestinal disorders (FGIDs)

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Introduction

Functional gastrointestinal disorders (FGIDs) are the most common diagnoses in gastroenterology and represent a group of chronic unexplained gut syndromes. Although descriptions of functional gastrointestinal symptoms have been noted for centuries, functional gastrointestinal disorders emerged only over the past several decades. (Drossman, 2016; Talley, 2020). Functional gastrointestinal disorders or disorders of gut-brain interaction (DGBIs), are defined as gastrointestinal (GI) disorders related to any combination of motility disturbance, visceral hypersensitivity, altered mucosal and immune function, altered gut microbiota, and altered central nervous system processing (Sperber et al., 2021). FGIDs are so named because they appear to defy an understanding within the traditional pathology-based paradigm, as in the routine clinical setting, structural or biochemical abnormalities that can explain symptoms are not evident. However, it is becoming apparent that there are certain structural or biochemical gut alterations among subsets with the common FGIDs (Talley et al., 2015). A multinational study reported that more than 40% of persons worldwide have FGIDs resulting in significant global health care costs and impaired health-related quality of life. (Sperber et al., 2021). FGIDs represents a serious economic and social problem. Reports suggest that they are a common cause of primary and secondary care consultations, are associated with increased rates of gastroenterological and non-gastroenterological investigations and treatments, and lead to significant morbidity and direct healthcare costs. (Carco et al., 2020). FGIDs are associated with a reduced quality of life, which are characterized by impairments in social, mental, occupational, and physical function. Reports suggest that approximately 30% of adults in

primary care settings are believed to suffer from depression, and between 30 and 50% have a comorbid anxiety disorder. People with FGIDs also have an increased non-gastrointestinal medical burden associated with a greater number of non-GI diagnoses, medical consultations, and pharmaceutical prescriptions compared to GI symptom-free adults (Lopresti et al., 2018). FGIDs are diagnosed and classified using standardized criteria, recommended by the Rome Foundation (the most widely accepted classification approach for FGIDs) (Talley, N.J., 2020). Among the most recognized and researched FGIDs are functional dyspepsia (FD) and irritable bowel syndrome (IBS) because of frequent presentations in primary care and gastroenterology clinics (Talleyet al., 2015).

Functional dyspepsia (FD) is defined as the presence of persistent symptoms referable to the upper gastrointestinal (GI) tract, in the absence of a structural organic pathology that would explain these symptoms (Mahadeva and Goh, 2006). The prevalence of functional dyspepsia is around 10–30% in the world, and in India, the prevalence is touted to be around 30–49% (Singh et al., 2021). FD symptoms include postprandial fullness, early satiety, and epigastric burning and/or pain based on the Rome-IV criteria, these patients often report other symptoms including heartburn, nausea, or bloating (Rane et al., 2021). Although FD is not a life-threatening condition it leads to substantial morbidity, in terms of its impact on health-related quality of life. Various complex mechanisms have been proposed for the pathogenesis of FD, including altered gastric motility, visceral hypersensitivity, brain-gut interactions, low-grade mucosal inflammation, *H. pylori* infection, and genetic or social and psychological factors, but the etiology and optimal treatment of FD remain unclear (Miwa et al., 2019).

Irritable bowel syndrome (IBS) is considered the most frequent functional GI disorder (FGIDs). It is a chronic, relapsing, and sometimes disabling disorder of gut-brain interactions, characterized by abdominal pain or discomfort accompanied by altered bowel habits (constipation, diarrhea, or alternating constipation and diarrhea) often coupled with abdominal bloating in the absence of detectable structural pathology (Hu et al., 2020). It is estimated that IBS affects approximately 11 percent population around the world. While in India, the prevalence of IBS ranges from 4.2 to 7.5 percent with a high prevalence among men (Wang et al., 2020), which can present with a wide range of gastrointestinal symptoms. Although abdominal pain is among the most common symptom of IBS, patients with IBS may also experience bloating, a sensation of incomplete evacuation, urgency, diarrhea, straining, and constipation. Based on Rome-iv criteria, IBS is categorized according to the predominant disorder in bowel habits into four subtypes such as diarrhea-predominant (known as IBS-D), Constipated predominant (known as IBS-C), and Mixed symptoms of diarrhea and constipation (known as IBS-M) and last one an Unclassified (known as IBS--U)

(Saha, 2014). The etiopathogenesis of IBS is not fully understood. Nevertheless, many factors have been suggested to be involved in the pathogenesis of IBS, such as brain-gut-axis defects, abnormal gut flora, visceral hypersensitivity, dysfunctions in colonic motility, a disorder in serotonin secretion, bile acid malabsorption, psychological disorders, genetic, altered immune response and environmental factors depending on the individual (Gu et al., 2019).

There are no laboratory tests or physical examination outcomes that can be used for the diagnosis of FD and IBS. Currently, the gold standard tool for the diagnosis of FD and IBS is Rome-IV symptoms-based criteria (Zhang et al., 2019). Because etiopathogenesis remains obscure, treatment is largely a trial and error process aimed at only reducing symptoms, not complete relief, and therefore remains suboptimal despite several new drugs being approved (Talley, 2020). Therefore, the management of FD and IBS is challenging due to the complex nature of the disease. The management option includes dietary and lifestyle modification, psychological and pharmacological therapies which provide only symptomatic relief and have many adverse effects such as loperamide causes nausea, cramping and constipation whereas, antispasmodic like dicyclomine cause drowsiness, dry mouth, blurred vision, inability to urinate in long term use (Adriani et al., 2018).

Treatment of FGID with Herbal Medications; The use of natural products with healing properties is as old as human civilization and plant products, minerals, and animal products were the main sources of drugs and used for a long time in different cultures and traditions. The use of herbal remedies as an adjunct or alternative to conventional medicine is also becoming increasingly popular all over the world. In the current situation, scientists paid attention to ethnomedicines and the use of herbal remedies in local healthcare systems across the globe (Ahmed et al., 2015). According to the WHO, the term “traditional medicine” is to be understood as the sum total of the knowledge, skills, and practices based on theories, beliefs, and experiences indigenous to different cultures that are used to maintain and improve health, as well as, to prevent, diagnose and treat physical and mental illnesses and has a keen interest in documenting the use of medicinal plants by native people from different parts of the world. Traditional and complementary medicine continues to be widely used in most countries, and its uptake is increasing rapidly in other countries. At the same time, interest in Traditional and complementary medicine is expanding beyond products to focus on practices and practitioners (WHO, 2013).

While conventional pharmacotherapies target one underlying mechanism, some herbal medicines may offer advantages. Herbal medicine has been reported to contain a wide variety of active substances in very small doses. They can act synergistically and target

multiple different pathophysiological pathways simultaneously (e.g., motility and inflammation). Studies suggest that in the setting of multiple factors that – in isolation or collectively – cause the symptoms, multitarget therapeutics can be viewed as a reasonable treatment approach until treatments have become available that allow treatments that are individually tailored toward the patient's needs with specifically compounded mixtures or bioactive constituents (Meier et al., 2013; Holtmann et al., 2020). Complementary and alternative medicine is commonly used by adults with GI conditions. Natural plant compounds present as potential options to restore GI health and reduce GI symptoms. The evidence from preclinical and clinical studies suggests that many natural compounds have anti-inflammatory and immunoregulatory influences, reduce oxidative stress, modulate intracellular signaling transduction pathways, and can alter gut microbiota. As a treatment option altering these molecular mechanisms can have beneficial effects on Gastrointestinal function. Moreover, plant-derived natural compounds also have the potential to lower visceral hypersensitivity which is a common problem in FGIDs (Lopresti et al., 2018). Herbal medicines are reported to have high tolerability and are thus especially appropriate in multi-factorial, chronic diseases such as functional gastrointestinal disorders (Meier et al., 2013).

Jawarish Shahi (JS) is a polyherbal preparation prescribed for gastrointestinal disorders in the pharmacopeia of Unani medicine. It is a semisolid traditional pharmaceutical dosage form based on different formulations of herbal combinations. Jawarish Shahi (JS) contains Phyllanthus emblica L., Terminalia chebula Retz., Coriandrum sativum L., Elettaria cardamomum (L.) Maton, and Salix caprea L. The ingredients of JS have been researched widely for their phytopharmacological benefits and multiple beneficial effects of different herbs of JS were reported in different biomedical studies. Seven clinical trials (Table 1) of herbal medicinal products which include one or more of the herbal ingredients of JS for FD and IBS were identified. All trials stated that included patients had been diagnosed with non-ulcer or functional dyspepsia, IBS, IBS-C, Functional constipation, and chronic constipation.

The present review aims to evaluate the Unani medicine perspective of FD and IBS and scientific evidence for the safety and efficacy of Jawarish Shahi (JS) and its herbal ingredients in the management of FD and IBS.

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Section snippets

Unani Medicine perspective of FGIDs

Unani medicine is one of the oldest systems that prevail to date with its efficient drugs derived from animal, plant, and mineral resources. Over 2400 years ago the father of medicine, Hippocrates practiced it, however, His medicine included a great deal of ancient Egyptian medicine as well as important components of the ancient Mesopotamian traditions. The methods of treatment according to the Unani Medicine are divided into four different parts namely diet therapy (Ilaj-Bil-Ghiza), regimental …

Jawarish Shahi (JS)

The term “Jawarish” is derived from the Persian word “Gowarish” which means digestion. It is a semisolid traditional pharmaceutical dosage form similar to Majoon (confection or electuary) in appearance. It is distinguished from Majoon by its superior taste and odor of the ingredients. The consistency of Jawarish is thicker than Majoon so when it is dried it can be split into pieces by hand. The ingredients of these formulations should be powdered in coarse particle size to ensure a longer stay…

Physicochemical Standards of Jawarish Shahi

Considering the popularity and acceptability of herbal medicinal products and formulations of Unani medicine in particular and to carry out the benefits and risk analysis there is a need for efficacy as well as safety analysis. The Physicochemical Standards analysis of Jawarish Shahi (Table .3) was carried out by the CCRUM, Ministry of Health and Family Welfare, Govt. of India and reported in “Physicochemical Standards of Unani formulations” published in 1986 by CCRUM, New Delhi (CCRUM, 1987)….

Toxicity evaluation of Jawarish Shahi

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Discussion and conclusion

Since ancient times, herbs have been used as a treatment and preventive strategy for several diseases, including gastrointestinal diseases. Unani medicine is one the oldest traditional medicine in which almost all the therapeutic and preventive measures adopted for two and half millennia by its scholars and physicians are still prevalent, and these have been scrutinized in the light of various scientific researches. Traditionally used herbs/herbal preparations are promising candidates for the…

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.…

CRediT authorship contribution statement

Mobeen A provided the overall concept and framework of the manuscript; Mobeen A and Moazzam SW researched and identified appropriate articles, and wrote the manuscript; Mobeen A revised the manuscript and approved the final manuscript.…

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.…

Acknowledgment

Authors are greatly indebted to colleagues, library staff who supported in the survey of the literature, collection, compilation, and writing this review work.…

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